A NEW PHILOSOPHY FOR STOCKPILING

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Lieutenant Commander, United States Navy

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ABSTRACT

The strategic and critical materials stockpiles of the United States have been developed and employed as a national security measure since they were established in 1946. The program for stockpiling has been beset by inefficient organization , stringent control and partisan politics since its beginning. Attempts to correct stockpile problems have been sporadic and generally ineffective. Because of the changing concept of warfare which has made stockpiling of raw materials relatively obsolete, a new and radical approach to revision of the stockpiling program is required. The cost of maintaining $9 billion of stockpile assets is increasing and is an additional reason for revision. This study traces the evolution of stockpiling, discusses principles, objectives and problems involved, and proposes a means for adapting the stockpile to the needs of the times.

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PREFACE

During the last decade or so the development and accumulation of nuclear weapons, first by the United States, and then by the Soviet Union, have revolutionized the problems of national security more rapidly than ever before in our history. No comparable technological revolution in weaponry has ever been quite like it. The analogy of gunpowder is frequently cited, but the substitution of gunpowder took place gradually over a period of centuries; and, like the weapons it replaced, gunpowder was used almost exclusively in a circumscribed area called the battlefield. Nuclear weapons, on the other hand, a few years after their invention, have made it possible, indeed cheap and easy, to destroy entire populations and economies. Such profound consequences influence the character of security that is desired for our country, as well as the policies used to achieve it. Today, or next year, or within any time span, one nation can unilaterally destroy another. Under such circumstances, problems that once dominated our strategy for defense have become obsolete. Fresh and imaginative thought is needed to portray accurately the needs of our country in the years ahead for security and the survival that it entails.

It was with these thoughts in mind that I selected from among many programs concerned with our national security the stockpiles of strategic and critical materials for analysis in this paper. It was selected, not because I believe it to be the most important, but because it represents much outmoded thinking that has been and is being applied to many Government programs, and it is one for which a measure of fresh thought is long overdue.

My purpose in this paper is to draw a thread of organization through the elements of the stockpiling program in order to present them in concert

with proposed changes It is believed that these will give new meaning and direction to stockpiling goals and concepts. Hopefully, this effort may prove useful in ways that I have not imagined.

I am indebted to Professor H. Arthur Hoverland of the Management School faculty for his assistance and thoughtful recommendations in helping me to develop this paper.

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INTRODUCTION

The great industrialist, Andrew Carnegie, once said, "Surplus wealth is a sacred trust which its possessor is bound to administer in his lifetime for the good of the community." [1]

He was not talking about the nation's stockpiles of strategic and critical materials, but the analogy is quite appropriate. The possessor in this case is the Government of the United States. The surplus wealth involved is the immense pile of materials currently in the stockpile. Our Government has a sacred trust to administer these assets for the good of the American public and for the security of the nation.

Stockpiles are national assets, or wealth, in the sense that much good can be extracted from their use in an effective stockpiling policy that is in harmony with the strategic thinking of the times. The original concept under which the stockpiling program was born has for all practical purposes been replaced by more realistic evaluations of the types of war that this country may be called upon to wage. The time required to mobilize and press into being superior forces as has been done in the past no longer exists. Wars will be fought with what is available at the time of attack as in the case of nuclear war, or they will be limited in nature to the extent that normal sources of materials from overseas locations would very likely still be available.

The logical follow-up to such recognition is to develop with as much foresight as can be commanded a stockpiling policy that will perpetuate

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[1] Edward A. McDermott, " An Open Letter on Stockpiling", Reprint from Mining Congress Journal, June 1963, Office of Emergency Planning, Washington.

the assets of the stockpile in such a manner as to remove them from their role as cost generating dregs upon the taxpayer's pocketbook. In so doing, such a policy should actively promote the utilization of stockpile assets in a variety of programs that will, in the end analysis, provide the greatest measure of good for the American public.

It is with such thoughts in mind that this paper will examine the present policy for stockpiling and offer certain recommendations for needed improvement. It is not inferred that the solutions for the problems to be presented herein are the best ones available. The point that should be recognized, however, is that a new and probably radical approach is required to put stockpiling on a paying basis. What's more, such an approach is needed soon, before the problem grows so large that it precludes any painless means for its solution.

If this paper serves no more than to stimulate thought on the part of those more qualified to deal directly with the problems of our national stockpiling program, then I would consider it to be worthwhile.

CHAPTER I

THE STRATEGIC AND CRITICAL METERIALS STOCKPILES

For many years a difference of opinion has existed about the relative effectiveness, or usefulness, of the Strategic and Critical Materials Stockpiles of the United States. Arguments over the need for such a stockpile have been loud and strong with proponents ranging from strong supporters of the program, such as domestic mining interests, to equally vehement opposition to this concept, such as modern strategists evaluating the defense requirements of our nation. Somewhere in between these extremes of position is the answer to what purpose stockpiling serves, now and for the future, and how such a purpose is to be achieved. The facts that bear on this argument must be considered logically to generate an overall solution for adapting the stockpile to present day requirements.

In presenting the material in this paper, only one definition is needed for the proper understanding of the term. Stockpile, or stockpiling, is used frequently and the term refers to the four major stockpiles of strategic and critical materials owned by the Government. Reference to any one individual stockpile is by name only.

The Philosophy of Stockpiling

Stockpiling has been described as a national insurance policy designed to cover the risk of serious or extreme shortages of basic raw materials during periods of national crisis, such as war:

> The stockpile is not designed or expected to break all materials bottlenecks, to solve all production problems, to stabilize minerals and agricultural commodities markets or to maintain marginal and sub-marginal mines in production in periods of falling demand. It is strictly a national security measure.[1]

This statement more than any other reflects the basic thinking which guided policy makers in their approach to stockpiling in the early years of its manipulation.

Stockpiling has also been likened to a gigantic banking operation, performing four different theoretical banking services. The first is that of a safe deposit vault. Stocks of materials are maintained under safe-keeping. Withdrawals of some stocks in the stockpile, similar to long-term investments, are to be made only as a last resort in the event of national emergency. The second service is that of a savings account. Stocks are withdrawn to meet military needs over and above the output available at a given time, but steps are taken to increase production or reduce consumption to enable the eventual replacement of stocks withdrawn. A third service is similar to a checking account used to balance day-by-day additions or deductions from supplies on hand. The fourth service provides a convenient cash or till reserve from which small quantities can be drawn to meet unexpected shortages in particular industries or plants.[2]

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[1] Department of Defense, The Munitions Board, Stockpile Report to the Congress, July 23, 1951, Washington, D. C., p. 6.

[2] Jules Backman, Antonin Basch, Solomon Fabricant, Martin R. Gainsbrugh, and Emanuel Stein, War and Defense Economics, Rinehard and Co., Inc., New York, 1952, pp. 133-134.

Purpose and Scope

Early thinking with regard to the purpose and scope of stockpiling is seen in the following excerpt from the Strategic and Critical Materials Stock Piling Act of 1946, the legislative forefather of our present stockpiling program:

> That the natural resources of the United States in certain strategic and critical materials being deficient or insufficiently developed to supply the industrial, military and naval needs of the country for common defense, it is the policy of the Congress and the purpose and intent of this act to provide for the acquisition and retention of stocks of these materials and to encourage the conservation and development of these materials within the United States, and thereby decrease and prevent wherever possible a dangerous and costly dependence of the United States upon foreign nations for supplies of these materials in times of national emergency.[3]

In order to effectuate the policy and purpose expressed above, this Act provides for the following:

1. Determination by the Government of those materials that are strategic and critical under the provisions of the Act as well as the quantities and quality to be stockpiled.

2. Industries concerned with stockpile materials were to participate in advisory committees to advise the Government with respect to purchase, sale, care, handling, etc., of stockpile materials.

3. Establishment of a reasonable time period (not over 1 year) to allow for production and delivery from domestic sources of materials for the stockpile.

4. The Government is to be responsible for:

a. Storage, security, and maintenance of the stockpile on military and naval installations, and other locations.

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[3] Public Law No. 520, 79th Congress, 2nd Session, July 23, 1946, Strategic and Critical Materials Stockpiling Act.

b. Necessary refining and/or processing to convert raw materials into suitable forms for stockpiling.

c. Rotation of materials in the stockpile as necessary to prevent deterioration and obsolescence.

d. Necessary disposals as the result of redeterminations.

5. A semiannual report to Congress on stockpile activities.

6. A release policy for materials in the stockpile:

a. On order of the President at any time when in his judgment these materials are required for defense purposes.

b. In time of war or national emergency by order of an agency designated by the President.

7. Receipt into the stockpile of surplus materials owned by other Government agencies if they are strategic or critical materials without charge to stockpile funds.

8. Investigations by the Secretaries of Agriculture and the Interior into resources, production, and utilization to increase reliance upon domestic rather than foreign produced strategic and critical materials.[4]

Thus the stockpiling program was designed to provide through advance storage for foreseeable deficits of various raw materials that were generally not available within the borders of the United States in sufficient quantity to meet essential wartime needs. The scope of the program included calling attention to opportunities for the conservation and development of sources of needed materials through scientific, technological and economic investigations.

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[4] Executive Office of the President, Office of Defense Mobilization, Office of Assistant Director of Materials, Outline of General Policy for Planning and Operation of the Strategic and Critical Materials Stockpile, March 8, 1954, letter signed by E. H. Weaver.

Stockpiling Objectives

The primary objective of stockpiling has been purported to be the reduction of the Nation's dangerous and costly dependence in time of war upon sources of essential raw materials from outside the borders of the United States. In support of this objective it has been necessary to accumulate a sufficient reserve of these vital materials to make up the deficit between probable requirements and estimated availabilities of supplies of materials that would be needed during any future conflict. It seeks to create a reserve of materials of a strategic or critical nature sufficient to meet the wartime needs of the country between the outbreak of hostilities and such time as may be required to expand domestic production to meet wartime needs, develop new sources of supply, or reestablish disrupted lines of supply from foreign sources.[5]

A second objective of stockpiling was the development of new domestic sources of strategic and critical materials, as well as the development of substitute and alternate materials. Programs have been in operation for years for development of substitute materials, for more effective use of existing raw materials, and for analysis of requirements for new and different materials in the development of weapons systems for the military services. Such programs have proved to be relatively successful, although there have never been any concerted Government programs in this area that were brought out during this study.[6]

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[5] Industrial College of the Armed Forces, The Economics of National Security, Vol. VI, Washington, D.C., 1956, p. 76.

[6] Jules Backman, op. cit., p. 134.

Legislative Authority for Stockpiling

The stockpiling program for strategic and critical materials exists under the following statutes. These laws are discussed in more detail in Chapter II.

1. The Strategic and Critical Materials Stock Piling Act (Public Law No. 520, 79th Congress amending Public Law No. 117 of June 7, 1939).

2. The Defense Production Act of 1950, as amended (Public Law No. 774, 81st Congress).

3. The Domestic Minerals Program Extension Act of 1953 (Public Law No. 206, 83rd Congress).

4. The Agricultural Trade Development and Assistance Act of 1954 as amended (Public Law No. 480, 83rd Congress).

5. The Domestic Tungsten, Asbestos, Fluorspar and Columbium-Tantalum Production and Purchase Act of 1956 (Public Law No. 733, 84th Congress).

6. The Agricultural Act of 1956 (Public Law No. 540, 84th Congress).[7]

Composition and Value of the Stockpile

As of December 31, 1963, the stockpile of strategic and critical materials inventory consisted of 52.1 million short tons[8] of materials accumulated in four separate stockpiles by the statutes listed in the preceding sections. The four stockpiles are:

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[7] Office of Emergency Planning, Stockpile Report to the Congress, January-June 1963, Washington, D.C., p. vi.

[8] General Services Administration, Statistical Supplement Stockpile Report to the Congress, July-December 1963, Washington, D.C., p. 1.

1. The National Stockpile; 2. The Defense Production Act Stockpile; 3. The Supplemental Stockpile; and 4. The Commodity Credit Corporation Stockpile.[9]

Except for some materials transferred from other inventories, all of those in the National Stockpile were acquired by authority of the Strategic and Critical Materials Stock Piling Act of 1946. All materials in the Defense Production Act Stockpile were acquired through the Act of the same name passed in 1950. Material in the Supplemental Stockpile was obtained under the barter features of the Agricultural Trade Development and Assistance Act of 1954 where the accumulation of stockpile materials was merely a by-product of an act designed to disburse a portion of the huge agricultural stockpile of food commodities. The fourth stockpile, the CCC Stockpile, is an inventory of items being held by the Commodity Credit Corporation awaiting transfer to the Supplemental Stockpile if no other Government agency wishes to buy or use them.

As of December 31, 1963, the stockpile was valued at $8,673,879,400 (this figure includes $80 million worth of material on order) at acquisition cost. The value of this material at estimated market price was listed as $7,671,716,700. Of the former total $5,756,516,100 at cost was in the National Stockpile; $1,483,573,500 was in the Defense Production Act Stockpile; $23,675,400 was in the CCC Stockpile; and $1,329,119,600 was in the Supplemental Stockpile.[10]

The value of materials in the stockpile inventories is in some instances only an estimate of what might be received from the sale of a

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[9] Office of Emergency Planning, Strategic and Critical Materials Descriptive Data, March 31, 1963, Washington, D.C., p. ii.

[10] Ibid.

specific stockpile material at any given time. Even in the case of items having published market values the price is subject to fluctuation in the market. Therefore, any value placed upon the stockpile must be accepted with certain reservations. Disposal of many materials would in all probability shrink their stockpile value thus increasing any loss the Government might sustain as the result of market price variances.

Many stockpile materials are traded actively each day in the commodity markets of the country and the world. They have a pegged daily market value which varies with conditions that affect the market. Almost all items of principal importance in the stockpile fit this category. Market variations are subject to many influences among which are the effects of large scale commodity dumping. Rumor of large sales have almost the same effect on the market as do actual dumping operations. So, it is only by acceptance of the theory of the going concern that a stockpile value can be pegged at the price indicated in the commodity market. To abandon the stockpile entirely and try mass disposal of these vast amounts of materials would be the equivalent of a major catastrophe to many nations.

Stockpile Administration

As of June 30, 1963, the entire stockpile inventory was stored at 165 different locations throughout the country as follows:

1.	Military depots	52 locations
2.	General Services Adm. depots	24 "
3.	Other Gov't. owned sites	10 "
4.	Industrial plant sites	39 "
5.	Leased commercial sites	16 "
6.	Commercial warehouses	24 " [11]

[11] Stockpile Report to the Congress, January-June 1963, op. cit., p. 10.

The exact locations of stockpile inventories is "need to know" information and is not available to the public, an indication that the secrecy question to be discussed later in this paper has still not been resolved.[12]

The cumulative storage and maintenance costs for materials stored at these facilities since the passage of the 1946 stockpile act totals $375,260,061 for the items in the National Stockpile, alone.[13] These costs include facilities construction, storage and handling, and net rotation charges over the life of the program. For the six months ending December 31, 1963, maintenance costs had totaled almost $6 million.[14] Over the past four years, in fact, these costs averages 12 million dollars per year. Storage sites are distributed throughout the country to avoid excessive damage in the event of military attack. Since location of these sites is considered to be important to the national security it is often cited as a reason for classifying this information and withholding it from the American public. Many of these sites are on military installations where rent is paid to the military service to whom the site belongs for use of storage spaces and facilities.[15] In other instances these materials are stored on private property rented from the owners for this purpose.

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[12] Letter from W.N. Lawrence, Office of Emergency Planning, to LCDR D. B. Gordon, February 4, 1964

[13] Statistical Supplement, op. cit., p. vi.

[14] Ibid.

[15] The service provided by a military installation in return for rental fees paid by the General Services Administration for stockpile storage and maintenance is described in an article in the January, 1962, issue of the Monthly Newsletter, Magazine of the Navy Supply Corps, entitled "Stockpiling Critical Material" by LT. R. H. Nace.

A number of important materials in the stockpile are held in the form of raw ore, concentrates, and upgraded material. Usually, these items are maintained in large quantities piled in the open where they are subject to the effects of the weather. Most raw ores and early forms of upgraded material can be stored in the open without noticeable loss from erosion, deterioration, or contamination. Significantly, some piles of raw ores and concentrates have been maintained in open storage since their acquisition in 1946.[16]

There is one other item of expense that is often overlooked when there is published discussion of stockpiling costs. This item deals with interest charged for money used to purchase the stockpile. It is not a precisely accurate calculation to figure exactly how much money has been paid out as interest by the Government, but Kent H. Crowther, a supervisory accountant for the General Accounting Office, was able to produce a fairly reasonable computation using an average interest rate for money spent on the program over the years of its existence. This average was determined to be 3.825 percent. At this average rate of interest it costs the taypayers $300 million each year to retain their present investment in the stockpiles of this country.[17]

Stockpile Management

Responsibility for management of the stockpiling program has been delegated by the President of the United States to the Director of the

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[16] U. S. Cong., Senate, Committee on Armed Services, National Stockpile and Naval Petroleum Reserves Subcommittee, Inquiry Into the Strategic and Critical Material Stockpiles of the U.S., Draft Report, Government Printing Office, Washington, D.C., 1963, p. 67.

[17] Ibid., p. 18.

Office of Emergency Planning, an agency within the Executive Office of the President. Plans and policies adopted for stockpile management are developed in concert with other executive agencies and departments having more than a passing interest in the activities of stockpiling. The principal policy recommending body is the Interdepartmental Materials Advisory Committee, a sort of board of directors. This committee is composed of representatives from the Departments of Defense, State, Agriculture, Commerce, and the Interior, the General Services Administration, Administration for Internal Development, the National Aeronautics and Space Administration, and observers from the Bureau of the Budget, the Atomic Energy Commission, and the Small Business Administration. IMAC is chaired by the Director of OEP.[18]

OEP develops policies with reference to (1) what materials are deemed to be strategic and critical; (2) the quality of the materials to be acquired; and (3) the quantities. To establish procurement goals for each kind of material stockpiled, OEP computes and establishes stockage objectives. These objectives constitute the quantity of each material required for the stockpile to satisfy strategic need. This phase of stockpiling will be discussed further along in the paper.

Under the terms of the Defense Production Act, the Office of Emergency Planning has the responsibility to determine policy to increase the productive capacity of the nation in terms of certain raw materials to the point where the immediate needs of the United States can be met domestically in the event of national crisis. This is sometimes referred to as

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[18] U.S. Cong., Senate, Committee on Armed Services, National Stockpile and Naval Petroleum Reserves Subcommittee, Inquiry Into the Strategic and Critical Material Stockpiles of the U.S., Part I, Government Printing Office, Washington, D. C., 1963, p. 1.

helping to establish a mobilization base. It is OEP's responsibility to determine when a program of expansion for any given material should be established.

From the start of the stockpiling program the General Services Administration has held responsibility for purchasing materials required to meet OEP's stockage objectives. Each year, after passage of appropriations acts authorizing procurement of stockpile materials, OEP issues a general directive to the General Services Administration designating materials to be purchased toward current stockage objectives. GSA, also, negotiates contracts for expansion of production facilities desired under Defense Production Act authority. GSA has additional responsibilities for maintenance, storage, and care of the stockpile inventories as was previously mentioned.

Congress has given the Government express statutory authority to acquire strategic and critical materials by bartering surplus agricultural products. The Department of Agriculture has primary responsibility for administering this program. Almost 90% of the materials now in the Supplemental Stockpile were acquired under Section 303 of the Agricultural Trade Development and Assistance Act. The Commodity Credit Corporation, a Federal corporation operated by the Department of Agriculture, acts as the Government intermediary in the conduct of barter transactions. All stockpile type materials acquired in exchange for agricultural surpluses are obtained at market prices, and the General Services Administration acts as the advisory agency in these cases. The Supplemental Stockpile is administered primarily by the Department of Agriculture. A committee known as the Supplemental Stockpile Advisory Committee for Barter assists the Secretary of Agriculture in determining what materials are best to take under the Barter authority.[19] Thus, it is seen that a third agency of the

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[19] Inquiry, Part I, op. cit., p. 129; Inquiry, Draft Report, op. cit., pp. 31-32.

Government is involved to a significant degree in the management of the stockpiling program.

And finally, Congress has much to say concerning what materials go in and out of the stockpile since it maintains a legislative watch over what transpires in the management of the program. Annual requests for appropriations to finance new stockpile purchases and maintenance costs provide much leverage through which Congress can make a considerable impression as to its desires for the stockpile.

Stockpile management is for all practical purposes a multi-managed affair with the Office of Emergency Planning trying to tie together something approaching efficient control of a rather difficult challenge to management ingenuity.

CHAPTER II

THE HISTORY OF STOCKPILING IN THE U.S.

In both World Wars I and II, and again in the Korean conflict, the provision of adequate supplies of basic raw materials was a prime objective of national policy. Each emergency found the nation basically unprepared. In 1917, months before Congress declared war, political and business leaders were stressing the need for preparedness, but neither in the War Department or elsewhere in the Government was there any definite plan for economic mobilization. The initial impulse for planning the effective use of manpower and resources came from men in private life. At first, the Government tried to introduce economic controls through persuasion, relying on the voluntary cooperation of the business community. It was not until six months after the declaration of war that compulsory control of exports and imports of raw materials was established, and almost a year before the control of priorities and price fixing was concentrated in the War Industries Board.[1]

As early as 1921 officers in the Departments of War and the Navy had discussed the need for a stockpiling program to establish economic independence in time of war. This thinking is well described in the following review by the Munitions Board of that day:

> Shortages of materials in World War I upset production schedules and delayed essential programs. Thenceforth, the General Staff took increasing account of materials requirements in its planning; a consolidated tabulation of 42 materials, known as the Harbord List, was drawn up in 1921

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[1] Percy W. Bidwell, Raw Materials, Harper & Brothers, New York, 1958, p. 32

as a fundamental criterion in determining the feasibility of military requirements. Subsequently the task of studying materials passed to the Office of the Assistant Secretary of War and then to the Army and Navy Munitions Board. The studies progressively broadened in scope to include constructive programs and policies to expand materials resources, to improve the availability of materials from outside the United States, and to solve specific wartime shortage problems.[2]

The Harbord List, together with the Army and Navy Munitions Board List of 17 strategic materials in 1939, is shown on Table I, page 16.

The first official step toward stockpiling was taken by the Navy in 1938 when Congress granted an appropriation of $3.5 million to accumulate reserves of strategic materials. The Stockpiling Act of June 7, 1939, gave legislative authority for an authorized expenditure of $100 million for stockpiling purposes. This was actually the beginning of our current stockpiling program. The Procurement Division of the Treasury Department was authorized to begin the accumulation of stockpiles over a four-year period. The need for broader authority and larger expenditures became increasingly obvious as World War II began in Europe. On July 25, 1940, the Reconstruction Finance Corporation was given broad powers to produce, acquire, and transport materials for defense. As the result of wartime controls and mass expenditures the U. S. emerged from World War II with a stockpile balance of some $500 million.[3]

The Strategic and Critical Materials Stock Piling Act of 1946, an amended version of the 1939 act, firmly established the stockpiling concept

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[2]Department of Defense, the Munitions Board, Stockpile Report to the Congress, January 23, 1950, Washington, D. C., p. 16.

[3]Jules Backman, op. cit., pp. 132-133.

TABLE I

THE HARBORD LIST, 1921 (42 materials)

Agar	Hemp	Nitrogen	Sodium Nitrate
Arsenic	Hides	Nux Vomica	Sugar
Antimony	Iodine	Opium	Sulphur
Asphalt	Jute	Palm Oil	Thymol
Balsa	Kapok	Phosphorus	Tin
Camphor	Linseed Oil	Platinum	Tungsten
Chromium	Manila Fiber	Potassium Nitrate	Uranium
Coconut Shells	Manganese	Quinine	Vanadium
Coffee	Mercury	Rubber	Wool
Cork	Mica	Shellac	
Graphite	Nickel	Silk	

ARMY AND NAVY MUNITIONS BOARD LIST, 1939 (17 strategic materials)

Aluminum	Nickel
Antimony	Optical Glass
Chromium	Quartz Crystals
Coconut Shells	Quinine
Manila Fiber	Rubber
Manganese (Ferro-grade)	Silk
Mercury	Tin
Mica	Tungsten
	Wool

Source: Stockpile Report to the Congress (Washington: The Munitions Board, January 23, 1950), p. 18.

as a permanent feature of American security measures. The 1946 act called for accumulation of $2 billion of material over a five-year period. Commodities were to be selected for stockpiling only after an intensive review which determined (1) that they were essential for defense, (2) that in wartime a serious deficit would exist between supply and demand, and (3) that stockpiling was the most practical and efficient means of meeting the deficit.[4]

At first, the stockpile grew so slowly that in January, 1949, the Hoover Commission reported its condition to be deplorable and made the following observations:

> The Committee wishes particularly to emphasize that in one critical aspect of industrial and mobilization planning, divided responsibility is leading to serious results. The condition of the stockpile is deplorable. While there have doubtless been many reasons for this, including limited appropriations in the past and restrictions on purchases which conflicted with civilian demands, an obvious, basic reason lies in the fact that there is no single, centralized responsibility and direction of stock piling and stock piling policy anywhere within the Government. Both by statute and by Executive Order, responsibility is diffused among the National Security Resources Board, the Munitions Board, the Treasury, and various other executive departments. This should be remedied at once.[5]

These words, for all practical purposes, are true today, fifteen years after the Hoover Commission reports.

Much of the difficulty was not organizational, however. The Munitions Board had proceeded cautiously with procurement plans for fear of

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[4]Percy Bidwell, op. cit., p. 40.

[5]The Committee on the National Security Organization, Task Force Report on National Security Organization (Appendix G), prepared for the Commission on Organization of the Executive Branch of the Government, January, 1949, p. 92.

depriving civilian industries of much needed materials for postwar reconversion and retooling. Congress, furthermore, had been reluctant to appropriate funds for carrying out its stockpiling wishes. Between 1946 and 1950 only half of the money needed for the five-year program authorized was provided.

However, the program received new impetus with the outbreak of hostilities in Korea and the Defense Production Act was enacted in 1950. This act made $3.8 billion in new money available for stockpiling purposes in the 18 months between July, 1950, and December, 1951, when it became evident that procurement of materials on a gradual basis was not sufficient to meet rapidly expanding needs. As requirements grew larger and more complex, it became evident that an in-house capability was desirable for producing any raw material that was remotely available within the nation's borders. This led to enactment of the Defense Production Act. Its main objective was to provide an incentive, where possible, for industries to enlarge their production facilities for critically needed items. Loans and guarantees were given to private business to expand capacity and explore, develop and mine essential materials. The Government provided protection by agreeing to buy up any surplus production in the event such happened.[6] And it did; the result was the Defense Production Act Stockpile.

One other agency to which Congress gave stockpiling responsibilities was the Economic Cooperation Administration. In 1948 this organization was authorized to use 5% of counterpart funds available in Marshall Plan countries to purchase strategic and critical materials. This procedure, however, made such inroads into available post-war free world supplies that bitter complaints were aroused from European countries in the throes of economic recovery and reconstruction. The same lack of concentrated

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[6]Office of Emergency Planning, Remarks by Edward A. McDermott, Director, Office of Emergency Planning, Press Release, August 13, 1963, Washington, D. C., p. 4.

responsibility that the Hoover Commission noted for the national stockpiling program was evident in the purchasing activities of ECA.[7]

The end of the Korean War did not bring a settled peace as the two major powers, the U.S. and the U.S.S.R., settled into the cold war. The nation was well aware of the need, by now, for adequate preparedness which included an adequate stockpile of strategic and critical materials. Western mining interests, suffering from the post-Korean slump in prices and demand, pressed Congress to increase its appropriations for stockpiling. The era in which politics used the stockpile for a pressure group yo-yo had begun.

In 1953-54 a Congressional investigation of the stockpile situation was launched. The investigation uncovered almost incredible confusion in the administration of the program. Some fifty-four different boards and agencies of the Executive Department were involved in some ways. In addition, the investigation uncovered the fact that five major interdepartmental committees and ten international groups were all concerned with stockpiling.[8] However, little resulted in the way of improvement over stockpile management in spite of the detail of this investigation.

In October 1953, President Eisenhower appointed a Cabinet Committee on Minerals Policy to study the problems relating to production and utilization of minerals and metals. The Committee's preliminary report laid the foundation for a new, long-term, stockpiling program for minerals and metals in particular. Under this program, the stockpile acquired additional supplies of stockpiled materials primarily from domestic producers.

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[7] U. S. Congr., Special Senate Subcommittee on Foreign Economic Corporation, 82nd Congress. 2nd Session, Strategic Materials Program of the Economic Cooperation Administration, Government Printing Office, Washington, D.C., 1952, p. 44.

[8] Percy Bidwell, op. cit., p. 43

Long-term stockage objectives, the new concept introduced by this committee, went further in the direction of self-sufficiency by ignoring all sources of supply outside the continental limits of the U. S. for strategic and critical materials. The net effect was to double, in some cases, total requirement for a given material for stockpiling purposes.[9]

Disposal of farm surpluses was the next objective that Congress attached to the stockpile program. The Agricultural Trade Development and Assistance Act in 1954 developed a plan to use foreign currencies received from the sale of surplus agricultural commodities to purchase strategic and critical materials both in countries buying surplus food and in third party nations. Under this authority barter transactions, as they were termed, increased until in 1956 they constituted the largest single source of material for stockpiling. In Fiscal Year, 1956, the total value of all strategic and critical materials acquired by barter for the Supplemental Stockpile exceeded $105 million.[10] Original enthusiasm for this method of paring farm surpluses cooled somewhat, however, when Congress learned that barter deals were taking the place of cash sales at better prices.

Under the pressure of mounting criticism in 1957 as to the strategic value of the stockpile, Gordon Gray, then Director of the Office of Defense Mobilization, assigned to an advisory committee composed of distinguished private citizens the task of reexamination of stockpiling policy. This committee published a report that covered several points considered to be representative of the problems faced in management of the stockpile at that point in time. These included:

1. Problems associated with upgrading materials.

2. The difficulty concerned with declassification of information regarding stockpiling activities.

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[9] Ibid., p. 44.

[10] Ibid., p. 45.

3. Methods involved with selection of materials to be stockpiled.

4. Questions concerning the effect of stockpiling upon the national economy.

5. Problems concerned with stockpile modification to prepare for the possibility of nuclear attack.

6. Possibilities of stockpile adaptation to the Civil Defense effort.

7. Recognition of facts concerning advances in military strategy and logistics that had changed the need for many common industrial materials.

8. Criticism of the fact that stockpiling had prepared the country for the last war.

9. Problems concerned with disposition of excesses.

10. Criticism of the diversion of stockpiling from its original purpose in an attempt to regulate the economy.

11. A blunt endorsement of stockpiling for national defense, only.

12. An endorsement of the food for materials barter program.[11]

None of the recommendations offered by this committee were immediately adopted. Many have never been adopted. The stockage objective was reduced as recommended from a 5 year war basis to a 3 year war basis by Defense Mobilization Order V-7 of June 14, 1958. It directed that "all strategic stockpile objectives shall be limited to meeting estimated shortages of materials for a 3 year emergency period."[12]

Things remained relatively dormant with regard to stockpile publicity until President Kennedy, on January 31, 1962, pried the lid off the problem when he announced at a news conference that he was "astonished to find that the stockpiling program had accumulated $7.7 billion worth of materials,

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[11] U. S. Special Stockpile Advisory Committee, Stockpiling for Defense in the Nuclear Age, Government Printing Office, Washington, D.C., 1958, pp. 9-12.

[12] Office of Defense Mobilization, Defense Mobilization Order V-7, Federal Register, June 14, 1958, p. 4333.

an amount that exceeds our emergency requirements as presently determined by $3.4 billion." He went on to say "the government has acquired more than seven times the amount that could possibly be used."[13] On February 23, 1962, an investigation was launched by the Senate Subcommittee on the National Stockpile and Naval Petroleum Reserves under the chairmanship of Senator Symington of Missouri. After many witnesses, 63 meetings (formal) and hearings, and 3,900 pages of printed record, the investigation was concluded and 18 recommendations were presented summarized as follows:

1. All inventories of strategic and critical materials should be acquired, handled and disposed of by uniform methods. Two stockpiles should exist; one including all materials up to the stockage objective; and two, all quantities in excess of these objectives.

2. Long-range disposal plans should be developed. Time required for delay between sale request and Congressional approval should be reduced to 60 days.

3. Only the President should be permitted to dispose of materials in the main, or number one, stockpile, and then only for national defense.

4. The objectives and operations of the stockpile should be unclassified and be considered as public knowledge.

5. The development of synthetics that will replace stockpile items that can be quickly produced from domestically plentiful materials should be recognized and encouraged.

6. The Interdepartmental Materials Advisory Committee should be abolished and consultation with the Office of Emergency Planning insofar as stockpile management is concerned should be on an advisory basis where other departments and agencies have an interest.

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[13] New York Times, February 1, 1962, p. 1, col. 6.

7. The barter of agricultural surpluses for strategic and critical materials should be stopped since an oversupply of any commodity such as would be acquired tends to depress domestic prices when held in the stockpile.

8. Stockpile funds should not be used to raise or support the market price of any commodity.

9. Surplus stockpile materials should be used wherever possible to discharge U. S. commitments under foreign aid and defense contracts.

10. Materials in the present stockpile are not suitable for rehabilitation under a post-nuclear attack plan.

11. A feasible program for survival after nuclear attack using existing stockpiled materials should be evolved.[14]

The investigation uncovered many instances where there were apparent windfall profits from the sale of materials to the Government for stockpiling purposes, and there was much criticism of the use of the stockpile for so-called private gain. However, there was the aura of partisan politics involved in much of what came out of the hearings, thereby lessening to some degree the creditability of the study. Also, too much attention was paid to what had been done, rather than engineering a conclusive search for the answers to effective solutions to stockpiling ills.

Along with the Senate investigation, President Kennedy appointed the Executive Stockpile Committee, on February 7, 1962, to review the principles and policies of stockpiling in the light of changing defense requirements and improved technology. This was a high-powered committee, indicating the President's concern over the problem, consisting of the Director of the Office of Emergency Planning, who was chairman, and the Secretaries of State, Defense, Commerce, Labor and the Interior, the Director of the

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[14] Inquiry, Draft Report, op. cit., pp. 109-110.

Central Intelligence Agency, and the Administrator of General Services. A series of recommendations were authored that paralleled those of the Symington Subcommittee.[15]

In addition, the Committee forwarded, on January 16, 1963, a report to the president entitled Disposing of Excess Stockpile Materials in which fourteen recommendations were offered, the most important of which was a set of specific disposal plans. These plans specified five methods of disposal which included sales for cash through normal commercial channels; disposal by direct Government use such as in the U. S. Mint for copper and nickel; indirect Government use by payments to Government contractors in the form of stockpile materials for work performed; the use of the barter medium where industry trades one type of goods produced for stockpile items; and, the use of stockpile materials to pay for upgrading requirements.[16] Some of the recommendations have been put into effect by the Office of Emergency Planning.

The latest activity of any consequence concerning the stockpile within the Government was the introduction of a bill, S.2272, in the 88th Congress, 1st Session, on October 31, 1963, by Senator Symington. This bill calls for enactment of a new stockpiling law to be called the "Materials Reserve and Stockpile Act." It would:

1. Provide guidelines for establishing stockage objectives.

2. Require all stockpiling contracts to be issued under the terms of the Renegotiation Act of 1951.

3. Create a Materials Reserve Inventory which would be used as a terminal stockpile through which excesses would be funneled to areas where they would best serve the needs of the country.

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[15]Office of Emergency Planning, Press Release No. 88, Tuesday, December 11, 1962, Washington, D.C., pp. 1-2.

[16]Office of Emergency Planning, Remarks by Edward A. McDermott, Director, Office of Emergency Planning, Press Release, August 13, 1963, Washington, D.C., pp. 12-14.

4. Reduce administrative lead time involved in the disposal of excesses from the stockpile, and eliminate burdensome procedures in the present stockpiling law.[17]

This bill fails to develop a radically new approach to the problems associated with stockpile management. It would cut some of the red-tape involved with disposal action, but legislative control would still be an inexorable restraint upon adapting the stockpile to the needs of the times. As of this writing S.2272 has been reported favorably out of subcommittee to the Senate Armed Services Committee. Chances for passage of the bill are not optimistic.[18]

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[17] U. S. Cong., Senate, Bill S.2272, Materials Reserve and Stockpiling Act, October 31, 1963.

[18] Letter from W. W. Lawrence, Office of Emergency Planning, to LCDR D. B. Gordon, March 24, 1964.

CHAPTER III

A DISCUSSION OF PRINCIPLES

Peter F. Drucker, probably the most widely known and highly respected industrial consultant and management authority of our time, wrote:

> There is a great deal of talk today about creativity as the source of innovation. The only dependable way to get innovation, however, is to make sure that we get rid of the old, the outworn, the no longer profitable or productive.[1]

This quotation has particular application to the stockpiling program as well as other areas of Government and business. Several principles under which stockpiling exists will now be examined in the light of criticism that has been and is being leveled at stockpile management.

Mobilization Base Principles

The principal objective of a program for materials availability in the event of war must be to provide an adequate supply of materials essential to the war effort at the time and places needed. Such an objective produces problems of transportation, reserves, and of processing into forms for fabrication and consumption. Each of these is related to the problem of establishing an adequate mobilization base designed to perform the dual function of meeting needs in an emergency, and providing for normal civilian demand plus military requirements on a level of national preparedness.

There is nothing new in principle about the essentials of readiness in raw materials. For many years military manpower has been managed on the theory of having reserve forces behind active forces. So, too, with raw

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[1]Peter F. Drucker, "How to Be An Effective Executive," Nation's Business, April, 1961, p. 21.

materials, ready reserves in both stockpiles and semi-processed goods are retained in waiting to be added to the normal peacetime flow when the situation requires such action. The same principle has been employed in industry where standby plants, machines, tools, and production lines are maintained in readiness.

Military mobilization means expansion of the armed forces, and the term, industrial mobilization, connotes production and labor force expansion. Raw materials mobilization is part of industrial mobilization and includes extraordinary measures needed to expand production of vital materials. The companion principle to expansion of supply is restriction of demand for less essential and nonessential uses. There is one additional principle which might be called one of substitution and improvisation, where women and children replace men in the factories and fields, and less scarce goods, replace the scarce varieties.

Like all other security measures, those pertaining to raw materials can be divided into preparedness measures which strengthen the mobilization base, and emergency measures instituted in the time of national crisis.

Stockpiling Principles

The contents of the Government stockpiles constitute readiness in two ways. First, the means to satisfy the first surge of demand in an emergency expansion of defense production when national conflict arrives is provided. Secondly, these materials serve to supplement the flow of production of stockpiled items until expansion of production catches up with demand. The principle of stockpiling is no different than that of saving for a rainy day.

One eminent strategist noted that the further along in the process of production a material is when stockpiled, the more effective it becomes

when an emergency strikes.[2] This is noteworthy because it counters contemporary thinking as to the form in which items should be

Stockpiling is essentially an operation to be conducted at times other than during national emergencies. To be successful, it should be completed prior to the onset of any war or crisis. Stockpiling should be against specific requirements. This presents the difficult task of estimating (1) what the overall requirement might be in the event of major conflict, (2) what the likely flow of material production would be, and (3) the resulting difference between (1) and (2) that gives the stockpile requirement. It is apparent that such a stockpile will be based upon national war plans and will be derived by calculating civilian and military demand for a period covering the length of an estimated war.

The Shifting Character of Essentiality

The principle behind determination of materials as strategic or critical must necessarily be flexible because of changing factors of supply and demand represented by each material in the stockpile. In addition, the effect of technology must be considered. Rapid strides are being made in the development and use of new materials that affect national strategy and economic planning. This makes any listing of strategic and critical materials subject to revision.

In addition, the raw materials' problems of the country in times of war are not solely limited to those commodities supplied primarily or largely from sources outside of the United States. The drain upon the domestic production of materials is accelerated and these, too, frequently become critical

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[2] George A. Lincoln, Economics of National Security, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1954, p. 189.

even though they have not been stockpiled. Raw materials for which there is a surplus during peacetime can and often do become both strategic and critical in times of war with resulting difficulties that even stockpiling can't prevent.[3]

Legislative Principles Involved

The various laws under which stockpiling was established did not specify which materials were to be stockpiled. They did not set goals or limits on the amount of material to be included. If there is one characteristic which is common to all statutes governing stockpiling, it is the broad discretionary powers given to the executive branch of the Government to carry out this program. With the exception of control over appropriations and the disposal machinery for stockpile excesses, Congress has seen fit to remove itself from stockpile control with regard to everyday operations.

The periods against which strategic and critical materials are to be stockpiled are labeled as times of national emergency, an elusive term whose definition has been left largely to interpretation by the executive. Whatever Congress contemplated when the Stock Piling Act of 1946 was passed, the language of the law does not limit national emergencies for which stockpiling is authorized to times of war. The law is broad enough to authorize stockpiling for periods of recovery following war, or even periods of national emergency arising from cold war conditions or economic causes if the executive so interprets.

Although it is evident from a review of the legislation that Congress contemplated stockpiling primarily minerals and metals in the raw or semi-raw

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[3] Jules Backman, op. cit., pp. 122-123.

state, the language of the law does not limit procurement for stockpiling to these types of materials. The word materials has been defined to include semi-processed and manufactured items as well as materials other than minerals or metals. It is left to the executive to determine in what form materials will be carried when stockpiled.

Secrecy, Classification and the Need to Know

There is an inclination in Government circles to immediately classify as secret, or higher, all matters that relate to the military posture of the country, or to any element involved with national security. This policy has not always been wise, necessary, or to the advantage of the American public. The following excerpt is relevant:

> The price of secrecy is not to be measured in terms of the irrationality of a policy product. One of the advantages to be gained from a condition in which policy is determined through the interaction of autonomous and competing elites is the opportunity to have rejected alternatives brought up again and again for renewed consideration. That the presence or absence of such opportunities can on occasion have great consequences for the national security can be easily illustrated by an incident in World War II. Hitler's decision to give low priority to the use of the ME-262 as a jet fighter was both swift and unsound. In the absence of any independent power base from which his judgment could be challenged, the decision stood until it was too late for a reversal to retrieve the fortunes of the German Air Force.[4]

Under security policies of the Government a wide range of information over which it has control is available only on a need to know basis.

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[4]Warner, R. Schilling, Paul Y. Hammond, Glenn H. Snyder, Strategy, Politics, and Defense Budgets, Columbia University Press, New York, 1962, pp. 236-237.

Such need in practice must be interpreted by thousands of individual custodians of security information. The need to know has little to do with a person's security clearance. A person can have a top secret clearance and yet be refused access to documents because some functionary, who is likely to be overcautious, judges that there is no need to know. This can and does have ludicrous consequences, such as actual cases in which persons have submitted reports to Government agencies and later have been denied permission to reexamine them.[5] In practice this sort of thing has meant that information bearing on plans and capabilities of the national endeavor has been given limited circulation.

It is not necessarily true, for example, that the less the Russians know about American plans and capabilities the better it will be for the national security. There are some things that the enemy needs to know if security is to be successful, especially if the object is to convince Russia that she cannot attack this country successfully, and that we in turn do not intend to attack her.[6]

The application of secrecy to operations of the stockpile since its early beginnings has without doubt caused much of the difficulty that is currently associated with the program. The public has been provided with little knowledge concerning its existence and the purposes to which the stockpile was dedicated. This has prevented the people from speaking out in opposition to such things as changing objectives to promote post-Korean War demand for domestic minerals with increasing expenditures in spite of excesses on hand.

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[5]Harry H. Ransom, Can American Democracy Survive Cold War?, Doubleday & Co., Garden City, New York, 1963, p. 257.

[6]Warner R. Schilling, op. cit., p. 235.

There is little doubt that the inventories, stockage objectives for most materials, and stockpile management information have remained classified when the need for secrecy had long passed. There may be some justification for classifying the stockage objective for materials short of the objective, but the amount of a given material in the inventory at any one time is a fact that can be easily determined by suppliers and by other countries.[7] Surely the public is entitled to know as much about the stockpile as do any special interest groups or foreign countries.

Above all, classification has provided the additional problem of trying to conduct stockpile affairs on a business-like basis without, at the same time, violating existing laws and regulations concerning the handling of classified documents. To anyone who has worked under such conditions the implications of doing business under such restraints is readily appreciated.

Stockpile Materials and Their Stockage Objectives

There are two questions concerning stockpiling that should be kept distinct and separate. One is what to stock, and the other is how much to stock.

Determination of what to stock is based upon clear evidence that the material in question is essential to wartime production, and unless anticipatory action is taken would be in short supply during an all-out war. It must also be demonstrated that stockpiling represents the most practical and efficient means of meeting the indicated wartime deficit. In determining the form and grade of materials to be stockpiled, a basic rule has been to stockpile material at the stage of processing where wartime deficits are likely

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[7] Inquiry, Draft Report, op. cit., p. 3

to occur. Consistent with this policy, the principles of maintaining maximum flexibility for wartime use, minimum loss from obsolescence, and lowest storage costs are involved. Thus, a number of metals and minerals are stockpiled in the form of raw ore or concentrates, such as manganese, chromium and tungsten. Others, such as copper, aluminum and nickel, are stockpiled in pigs, ingot, or similar metallic forms. Occasionally, security is the determining factor as to the form in which a material will be stockpiled. Most are stockpiled, however, in the form most easily and speedily utilized in the event of war.[8]

A list of the materials held in the stockpile as of December 31, 1963, is included as Table II on page 34.

Determination of how much to stock is provided by the use of a term called the stockage objective. This is the quantity of a given material required to be carried in the stockpile, determined by comparing requirements for the material with sources of supply for an estimated period of time of national conflict. Expected sources of supply include domestic and reasonably available foreign supplies considered in the light of possible, enemy restrictions. Considering the purpose of stockpiling, this method of computing a stockage objective appears to be correct and logical.

However, in 1954, in order to justify further purchases of lead and zinc for the stockpile when use of the original method of computing the stockage objective failed to provide a reason for additional buying, basic assumptions were changed. Two objectives were then determined for each item in the stockpile. A basic objective was computed as before, and a new long-term objective, called the maximum objective, was computed by disallowing all sources of supply from over-seas areas. This had the effect of doubling the amount of certain materials carried in the stockpile.

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[8] Industrial College of the Armed Forces, op. cit., p. 78.

TABLE II

LIST OF MATERIALS IN THE NATIONAL STOCKPILE. December 31, 1963

Aluminum
Aluminum Oxide
Antimony, Metal
Asbestos, Amosite
Asbestos, Chrysotile
Bauxite, Metallurgical Grade
Bauxite, Refractory Grade
Beryl, Ore
Beryllium Copper Master Alloy
Bismuth
Cadmium
Castor Oil
Chromite, Chemical Grade
Chromite, Metallurgical Grade
Chromite, Ferro, High Carbon
Chromite, Ferro, Low Carbon
Chromite, Refractory Grade
Cobalt
Columbite
Copper, Metal
Cordage Fibers, Abaca
Cordage Fibers, Sisal
Corundum
Diamonds, Industrial: Bort
Diamonds, Industrial: Stones
Diamond Dies
Feathers and Down
Fluorspar, Acid Grade
Fluorspar, Metallurgical Grade
Graphite, Madagascar-Crystalline Flakes
Graphite, Natural, Ceylon, Amorphous Lump
Graphite, Natural Other than C&M Crys.
Hyoscine
Iodine
Jewel Bearings
Kyanite-Mullite
Lead
Magnesium
Manganese, Battery Grd., Nat. Ore.
Manganese, Battery Grade, Syn. Diox.
Manganese, Chemical Grd., Type A
Manganese, Chemical Grd., Type B
Manganese, Ferro
Manganese, Metallurgical Grade
Mercury
Mica, Muscovite Blk, Good, Std, Bet.
Mica, Muscovite Block, Stained
Mica, Muscovite Film
Mica, Muscovite Splittings
Mica, Phlogopite Splittings
Molybdenum
Nickel, Metal
Opium, Morphine Content
Platinum Group Metals, Iridium
Platinum Group Metals, Palladium
Platinum Group Metals, Platinum
Pyrethrum Extract
Quartz Crystals
Quinidine
Rare Earths
Rubber
Rutile
Sapphire and Ruby
Selenium
Shellac
Silicon Carbide, Crude
Silk, Raw
Sperm Oil
Talc, Steatite Block
Tantalite
Tin
Tungsten
Vanadium
Vegetable Tannin Extract, Chestnut
Vegetable Tannin Extract, Quebracho
Vegetable Extract, Wattle
Zinc

Source: Statistical Supplement Stockpile Report to the Congress (Washington: The General Services Administration, July-December 1963), pp. viii-ix.

Soon after, it was evident that even with the long-term maximum stockage objective additional purchases of zinc and lead considered desirable for reasons other than national security were not permissible and the arbitrary 1 year rule was established. This gave the stockpiling program three different stockage objectives depending upon how the need was interpreted. The 1 year rule required the stockpile to carry sufficient material of a strategic or critical nature to sustain the total peacetime national economy during a normal year (also arbitrary). This rule made no mention of wartime requirements. The effect was to increase levels of some materials in the stockpile once more.

Setting stockage objectives for materials to be stockpiled has a very great impact upon the volume of material to be purchased by the Government and the amount of money to be spent to make these purchases. It has another important impact as well. It serves as the means for determining whether the amount of material held in the stockpile for a specific material is surplus to projected needs or whether the item is deficient. Thus, the arbitrary nature of the stockage objective computation provides a convenient vehicle for application of stockpile purchases or sales to any specific requirement or strategy that might be advised.

The method used to compute stockage objectives is classified and the principle of need to know is cited as the governing criterion.[9] However, it is known that a factoring formula is applied which discounts the normal supply of material from a specific source. Three separate factors are employed; the first discounts the internal dependability of an exporting country; the second discounts for the probability of shipping losses from the exporting country; and, the third discount is based upon the relative

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[9]Letter from W. N. Lawrence, Office of Emergency Planning, to LCDR D. B. Gordon, March 24, 1964.

concentration of supply of a material in any one geographical area. Discounts range from ten to one-hundred percent. In addition, discounts applied to a specific country are the same for all materials exported by that country. As an example, the normal expected supply of nickel from Country X is 10,000 tons over a three year period. Discounting 15% for internal dependability, 30% for shipping losses, and 20% for concentration in that country's area produces a total discount of 65%. Thus 65% of the 10,000 ton normal supply would be considered unavailable in time of national crisis from Country X. Therefore, the stockpile would store as a portion of its stockage objective 6,500 tons of nickel. The factoring system is applied to all materials in the stockpile.[10] How and by what computations the factor discounts are determined is classified information.

The determination of a stockage objective involved two areas of judgment that have been particularly troublesome. First, there is a great deal of leeway possible in appraising total emergency levels of supply for materials in the stockpile. For several years the practice was to favor a conservative approach, such as assuming reasonably normal flows of materials from both domestic and foreign sources during conflict thereby creating a lower stockage objective. The Department of the Interior, however, long favored the assumption that all foreign supplies should be assumed to be cut-off during a war, an assumption that led indirectly to the maximum or long-range stockage objective. Secondly, there has always been uncertainty as to the most desirable rates of acquisition of stockpile materials, even though today the stockpile is considered to be at required strength for all

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[10] U. S. Cong., Senate, Committee on Armed Services, National Stockpile and Naval Petroleum Reserves Subcommittee, Inquiry Into the Strategic and Critical Material Stockpiles of the U.S., Part 2, Government Printing Office, Washington, D.C., 1963, p. 508.

but three materials, chrysolite asbestos, small diamond dies and jewel bearings.[11] The extremes of political pressure under which stockage objectives have been determined since the stockpiling program began have served to seriously undermine the development of stockage objectives that properly represent the needs of the country under the stockpiling concept.[12]

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[11] Office of Emergency Planning, Remarks by Edward A. McDermott, Director, Office of Emergency Planning, Press Release, August 13, 1963, Washington, D. C., p. 9.

[12] David N. Milstein, "Stockpiling-What Now?," Challenge, Vol. 10, No. 9, June 1962, pp. 31-32.

CHAPTER IV

IS STOCKPILING AN ANACHRONISM?

Disturbing criticism of the stockpiling program is heard from many sources including those most concerned with the study of military science and international affairs. The concern is not only with the mounting cost of the program but with its usefulness as an element of national security. In the ten years that followed enactment of the Stock Piling Act in 1946, two events, the development of nuclear weapons and the emergence of Russia as a super-power, made reexamination of previously sacred United States defense policies necessary. Henry A. Kissenger 1969 has written:

> Since World War I our strategic doctrine has always been built around the proposition that our forces in being at the beginning of a war need only be large enough to avoid disaster and that we could then crush the enemy by mobilizing our industrial potential after the outbreak of hostilities. The strategic significance of our industrial potential has presupposed a fortuitous combination of circumstances, however: our invulnerability to direct attack, the existence of allies to hold a line while we were mobilizing, and, above all, a certain stage of industrial and technological development.[1]

But nuclear weapons have cancelled the circumstance of invulnerability to direct attack; the NATO alliance is presumed to be incapable of withstanding the power of the Soviets long enough for the United States to rearm; and with our mobilization base vulnerable to destruction our industrial and technological superiority becomes relatively unimportant when compared with the need for forces in being at the time of attack.

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[1] Henry A. Kissenger, Nuclear Weapons and Foreign Policy, Harper Brothers, New York, 1957, pp. 90 - 91.

Charles J. Hitch, Comptroller of the Department of Defense, points out:

> In an all-out thermonuclear war the superior economic war potential of the United States is important only to the extent that it has been effectively diverted to security purposes before war starts. This is true for all forces, offensive or defensive..... for preparedness for full thermonuclear war the United States must learn to rely on forces in being, not as cadres about which much larger, newly mobilized forces will be organized, but as the important forces.[2]

Herman Kahn, a noted strategist and mathematician, notes that "In an all-out nuclear war which would probably last less than 30 days, and which perhaps might last only 30 minutes, there would hardly be time for the operation of a post attack mobilization base."[3]

An all-out nuclear war, however, is not the only or most likely possibility. It would seem that we are probably subject to one of several types of wars. It is not too difficult to imagine and describe six possible types of war. These might be as follows:

1. Limited War in Europe. Hostilities would be confined to the European area, nuclear weapons would not be used, and combat forces would stabilize positions within a few months. This would be the so-called World War II type of conflict, perhaps on a smaller scale.

2. Korea-type War. Protracted fighting would be confined to Southeast Asia or Korea, such as the Viet-Nam affair, against organized combat forces of Red China or her satellites, and with the U. S. having a secure position, initially, on the Asian continent.

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[2] Charles J. Hitch and Roland N. McKean, The Economics of Defense in the Nuclear Age, Harvard University Press, Cambridge, Mass.,1961,p.15.

[3] Herman Kahn, Thinking About the Unthinkable, Horizon Press, New York, 1962, p. 82.

3. Counterinsurgency Operations. Action would be taken against subversive guerrilla units that seek to undermine local national governments through raids, sabotage and infiltration in Southeast Asia, Africa, and Latin America.

4. Limited Sea War. Russia would attempt to blockade nations friendly or allied with the U. S. with submarines in order to make them accept certain political demands.

5. All-out War Concluded, European Assistance Available. Massive destruction would occur within the U. S. from nuclear attack. There is an armistice in force and Europe, being undamaged, is able to assist in our recovery.

6. All-out War Continuing, European Assistance Unavailable. Massive destruction would occur in the U. S. with broken-back operations continuing. Europe is occupied, blockaded or smashed.[4]

It might appear that we are stockpiling the wrong commodities, sometimes in the wrong places, for presumably the wrong, or least likely war. This does not mean, however, that the country should abandon the stockpiling concept entirely. Considerations should be given to broad categories of materials that might reasonably be stockpiled against the kinds of wars most likely to be fought. The basic thought should be one of strategy rather than tactics as far as stockpiling is concerned. A class of commodities that might have more value in a stockpile than those presently carried are listed as follows:

1. Selected mineral ores (chromite, molybdenum, thorium, etc.)
2. Raw materials, other than mineral (hemp, silk, wool, etc.)
3. Primary food commodities (rice, wheat, sugar, etc.)

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[4]U. S. Cong., Senate, Committee on Armed Services, National Stockpile and Naval Petroleum Reserves Subcommittee, Inquiry Into the Strategic and Critical Material Stockpiles of the U.S., Part 9, Government Printing Office, Washington, D. C., 1963, pp. 3149-3150.

4. Medical supplies (anesthetics, dressings, antibiotics, etc.)

5. Machine tools (lathes, drills, presses, etc.)

6. Heavy removal equipment (mobile cranes, debris conveyers, excavation equipment, etc.)

7. Construction materials and equipment (structural steel, pipe, lumber, earthmovers, etc.)

8. Processed foods (canned meats, milk powder, milled flour, etc.)

9. Emergency camping equipment (tents, blankets, canteens, stoves, common hardware, winter clothing, etc.)

10. Petroleum products (gasoline, diesel fuel, lubricants, etc.)

11. Gold (for example, bullion at Fort Knox)[5]

For either counterinsurgency operations or limited sea war, no significant stockpiling beyond inventories held by the Armed Forces, industry and the distribution pipeline appears necessary. For all-out war, raw materials are of secondary importance since the primary need would be for finished consumer goods. Heavy, mobile equipment would be needed to move debris and reconstruction materials and should be stockpiled. In the event of limited war normal sources of supply would in all probability remain available. Stockpiling does not seem justified under such conditions. Only in the event of a repetition of a general war, such as World War II, does stockpiling of selected minerals and raw materials seem valid.[6]

What are the possibilities of any one of these wars occurring in the years ahead? This is an extremely difficult question to answer. Dr. Bernard Brodie of the Rand Corporation concluded that "where the object is to predict the future, for the sake of appropriate action, we simply cannot wait

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[5] Ibid., 3151.

[6] Ibid., pp. 3151-3152.

until all the relevant facts are in." He also pointed out that "wars are the graveyards of the predictions concerning them."[7]

In the face of such advice it seems safe to conclude that as long as the United States and Russia maintain a nuclear stalemate neither will deliberately choose to attack the other in an all-out nuclear war, except in desperation. This reduces the danger of such a war although accidents, miscalculations or actions by other nations could easily upset such a theory. It also seems that the Communists will minimize the risk of starting an all-out war and will use limited military force as the means of achieving their objectives, and when that is not possible cold war tactics will be pressed.[8] "A candid view of the nature of the contemporary struggle for power compels one to recognize that the Communist approach to war is as compatible with the imperatives of cold war and limited war as the traditional American approach is incompatible."[9] Finally, it seems safe to assume that a World War II type of conflict, the one that justifies the stockpile's existence more than any other, is least likely to occur. In the event of complete atomic disarmament this type of war would assume a greater probability of occurrence.[10]

Thus, commodities stockpiled against a World War II type of conflict, the only one for which stockpiling in its present form could be termed essential, might conceivably be set at a one year supply of incremental needs.[11] A comparison of suggested stockpile requirements as previously cited is matched with the six potential types of war in Table III on page 43.

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[7] Bernard Brodie, Strategy in the Missile Age, Princeton University Press, Princeton, New Jersey, 1959, pp. 406-407.

[8] Robert E. Osgood, Limited War, The University of Chicago Press, Chicago, 1957, p. 5.

[9] Ibid., p. 57.

[10] Charles J. Hitch, op. cit., p. 14.

[11] Inquiry, Part 9, op. cit., p. 3152.

TABLE III

STRATEGIC NATIONAL STOCKPILES Kinds of Wars and Kinds of Needs Needs	Limited European War	Korea-type War	Counterinsurgency Operations	Limited Sea War	All-out War Concluded	All-out War Continuing
1. Selected mineral ores and metals	#	%	0	0	0	%
2. Raw materials-other than mineral	#	%	0	0	0	%
3. Primary food commodities	0	0	0	0	0	%
4. Medical supplies	%	0	0	0	#	#
5. Machine tools	%	0	0	0	#	#
6. Heavy removal equipment	0	0	0	0	#	#
7. Construction materials & equipment	0	0	0	0	#	#
8. Processed foods	0	0	0	0	#	#
9. Emergency camping equipment	0	0	0	0	#	#
10. Petroleum products	0	0	0	0	#	#
11. Gold	0	0	0	0	#	%

Code: # (Should be stockpiled); 0 (Should not be stockpiled); % (maybe)

Source: Inquiry Into the Strategic and Critical Materials Stockpiles of the U. S. (Washington: National Stockpile and Naval Petroleum Reserves Subcommittee, U. S. Senate, 1963), p. 3164.

CHAPTER V

THE PROBLEM OF EXCESSES

Perhaps the most significant problem facing stockpile management is that of disposition of materials in the stockpile that are in excess of requirements. This problem is by no means small. As of December 31, 1963, the value of materials in excess of stockpile stockage objectives exceeded $5 billion.[1] If a decision were made to reduce the stockpile inventory to a one year supply of incremental materials, as was discussed in the preceding chapter, the excess value would be considerably greater.

The problem is intensified because of the effects upon domestic mining and foreign policy interests that wholesale disposal of stockpile materials has upon prices in world and domestic markets. Both U.S. mining interests and countries whose economies are tied to one product mineral exports strongly oppose any disposal attempts that exceed token dribbles.

Senator Wallace F. Bennett of Utah, testifying before the Symington Subcommittee, related:

> Back in 1959, the Office of Defense Mobilization merely announced that it was considering the sale of 128,000 tons of copper from the stockpile. As this information leaked to the public two news stories appeared in the Daily Metal Reporter entitled "Government Penny-Wise, Pound Foolish Copper Policy" and "Copper Markets Weakened By Government Disposal Talk." These stories showed that

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[1] Statistical Supplement, op. cit., p. vi.

the price of copper dropped in the London market in 7 days by 2.62 cents a pound while the domestic market price dropped 2 cents a pound in the same period.[2]

It should be observed, however, that these interests have had less to fear from sales of excesses than might be expected. No portion of the Stock Piling Act of 1946 received more intensive attention from the lawmakers than did the means for disposing of materials from the stockpile. Congress apparently considered the matter to be of primary importance and retained firm control over any proposed sales. This was done by permitting disposal only with the "express approval of Congress", and then only after a six months delay. During the 1946 Congressional hearings on the Stock Piling Act, the mining industry pointed out emphatically the potential danger of large accumulations of metals and minerals in Government hands with their overhanging effect upon private mining interests. They successfully argued for adequate safeguards against disposal to the extent that, as Senator Edwin C. Johnson of Colorado phrased it, "the stockpiles were locked up and Congress kept the key."[3]

For a number of reasons Congress has been reluctant to approve more than token sales of materials from the stockpile. Congressmen from mineral producing states express concern over dumping possibilities. Therefore, the law provides a number of safeguards against hasty disposal action. Announcement of a proposed sale must be published in the Federal Register for at least six months prior to the date of intended disposal action. In addition, sales from either the National Stockpile or the Supplemental

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[2]U. S. Cong., Senate, Committee on Armed Services, National Stockpile and Naval Petroleum Reserves Subcommittee, Inquiry Into the Strategic and Critical Material Stockpiles of the U.S., Part 5, Government Printing Office, Washington, D. C., 1963, p. 1451.

[3]Ibid.

Stockpile must, as was mentioned, have express Congressional approval. Until 1962, the Departments of Agriculture, Commerce, Defense, State and the Interior were in a position to veto any stockpile disposal plans. This was often done to protect some interest vital to that department's business. This restriction was removed to some degree by Defense Mobilization Order V-7 which was republished on April 25, 1962.[4]

Foreign policy considerations often stand in the way of disposal action of certain materials. For example, the State Department opposed sale of natural rubber from the stockpile on the grounds that market prices might drop so sharply as to disrupt the economies of Malaya and other sources of rubber in Southeast Asia. It objected, as well, to disposal of quartz crystals even though there has long since been developed a superior synthetic. Brazil had been the primary source of these crystals and sales from the stockpile might have seriously damaged an already shaky Brazilian economy.

The ultimate responsibility for disposal action rests with the Office of Emergency Planning which in turn directs the General Services Administration to prepare necessary disposal plans. These plans usually set forth a description of the material, amount of material for disposal, the manner of disposal with particular emphasis on the length of time over which substantial amounts of materials will be sold and terms for the sale. A notice is then published in the Federal Register and the long six months' wait begins.[5]

Attempts to dispose of excesses have been ineffectual, although the Office of Emergency Planning is having better success of late. There have

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[4]Richard L. Worsnop, "Government Stockpiling," Editorial Research Reports, Vol. II, No. 8, August 22, 1962, Washington, D.C., pp. 630-631.

[5]Inquiry, Draft Report, op. cit., p. 28.

been good sized disposals of natural rubber, tin and aluminum in the U.S. in the last two years. Significantly, there are no producers of these materials in this country, which could well account for the fact that they have received the necessary sanctions from Congress for their disposal. Plans were recently announced for long range (over 6 to 8 years) disposal of 127,000 tons of surplus tin from the stockpile. It is noteworthy, however, that 98,000 tons of this amount have not received Congressional authorization for disposal to date.[6]

Much has been written and more has been said about the disposal function in stockpiling. Senate Bill, S.2272, submitted by Symington Subcommittee makes a stab at improving the disposal machinery by shortening the waiting period from 6 months to 60 days. But, Congressional control over disposal remains, and this is short of the type of improvement that is needed to give stockpile management an even chance to handle adequately this problem.

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[6] The Wall Street Journal, March 23, 1964, p. 22, col. 1.

CHAPTER VI

PROPOSALS FOR IMPROVEMENT

The absolute growth in expenditures for Government services and functions of all kinds have stimulated appraisal of how these operations are managed and to what uses the public's money is being put. The application of national resources by the Government toward public objectives has made it imperative that efficiency be obtained in order to derive maximum benefit from their use.

To accomplish a specified level of operational efficiency the preferred method will be that which involves the least cost in the form of claims on resources having valuable alternative uses. Alternatively, if resource use is limited by budget constraints, then the preferred method is the one that yields the greatest effectiveness for the funds budgeted. Whichever the constraint, a given effectiveness or a given budget, the issue is the same. The preferred activity is the efficient or economical one in which resources cannot be employed for one use without removing them from another use.[1]

There is something to be gained from establishing decision making machinery in Government operations such that operating decisions are made according to the merits of the uses of a given set of resources. Efficiency would then depend upon the degree of economic responsibility achieved in selecting among alternative ways of carrying out the operation.

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[1]Norman V. Breckner, "Government Efficiency and the Military Buyer-Seller Device," Journal of Political Economy, Vol. LXVIII, No. 5, October, 1960, University of Chicago Press, Chicago, p. 469.

One means for achieving such a result in Government is the buyer-seller device. This is a refined approach to the Lerner Proposal of World War II fame which proposed for the military services establishment of a market operating on a decentralized decision making basis much as the private sector of the economy does. The laws of supply and demand would control military spending and resource usage such that efficiency of operation would be rewarded by a greater return on dollars spent to achieve a specific goal or objective.[2] The buyer-seller device attempts to impose upon the Government agency the type of coordination and constraint that controls existence in the market of the private economy.[3]

One approach used by the Government to establish the buyer-seller device has been the revolving fund of which military stock funds and industrial funds are examples. The following definition is quoted:

> A revolving funds is a fund established to finance a cycle of operations to which reimbursements and collections are returned for reuse in a manner such as will maintain the principal of the fund.[4]

Congress, in the past, has established a number of special revolving funds designed to improve and give more flexibility to certain types of Government operations. There have been numerous proposals to extend this type of financial operation to other agencies. The Bureau of the Budget has favored use of revolving funds because they permit more informed budget and fiscal action, and provide for systematic presentation of business-type budget information by the agency concerned.[5]

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[2]Charles J. Hitch, op. cit., p. 222.

[3]Norman V. Breckner, op. cit., p. 470.

[4]U. S. Dept. of the Navy, Navy Comptroller Manual, Vol. I, Appendix A, Glossary of Terms, p. A-16.

[5]U. S. Cong., Senate, Committee on Govt. Operations, Financial Management in the Federal Govt., Government Printing Office, Washington, pp. 265-266.

President Eisenhower, in his budget message to Congress for Fiscal Year, 1961, said:

> Major business-type activities of the Government should, with few exceptions, operate on a self-sustaining basis. Their budgets and accounts should permit ready comparison with their expenses and revenues. They should have simplicity in their financing structure and flexibility in expenditures necessary to meet unforeseen business conditions ....through revolving funds.[6]

Adaptation of the revolving fund method of financial management to public enterprise has several advantages:

1. It provides a clear presentation of profit or loss by bringing the expenses and revenues of the operation into close relationship. Business-type budgeting and reporting utilizing balance sheets are automatically employed. Congress can more readily determine the extent to which it may wish to draw upon public taxation to finance the operation. In contrast, traditional methods of appropriation financing tend to obscure rather than disclose significant facts about the enterprise.

2. It provides simplicity in the financing and funding structure. In lieu of many separate pockets for the deposit of receipts, revolving funds permit organization receipts to be placed in one fund which is available for the expenses and capital outlays of the enterprise. Multiplicity of accounting pockets for receipts creates unnecessary work and contributes to difficulty in understanding the financial impact of the operation.

3. Flexibility of operation is improved within budget controls set by Congress. While a revolving fund must necessarily keep within the capital Congress provides for it plus any profits generated, it is customary for Congress to provide a higher degree of flexibility to meet unforeseen conditions than is the case with annual appropriations.

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[6] Ibid.

4. They provide more incentive for effective management of revenue than when receipts are placed directly in the general fund of the Treasury. This is particularly true where the revolving fund is designed to be self-sustaining.

5. It removes the potential for distortion and inflation of information gathered from budget receipt and expenditure totals. Revolving fund expenditures are stated on a net basis in budget totals, reflecting charges that must be paid by the taxpayer. Without a revolving fund the same activities are counted on a gross basis in budget totals even where expenditures match user charges in the budget receipt figures.[7]

Finally, the second Hoover Commission recommended further examination of the application of revolving funds to Government operations. In addition, it recommended that controller type organizations be established in the principal agencies of the executive branch to improve their financial organization.[8]

Returning to the stockpile program, it is suspected that financial management of stockpile operations can be measurably improved by use of the revolving fund concept. Although the scope of the stockpile program exceeds that normally associated with agencies who employ revolving funds, it is believed that careful adaptation of this principle can prove to be extremely beneficial. Three types of improvement are envisioned:

1. Stockpile management should be motivated to conduct stockpile affairs more efficiently since there would be an appropriate measure of

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[7] Ibid., p. 268.

[8] Ibid., p. 63

effectiveness in terms of profit or loss generated by stockpile activities. This would provide a bench mark for accolades or criticism by Congressional authorities and politicians.

2. A more effective effort to dispose of surpluses could be pursued. Applying the principles of product diversification, in a broad sense, sales would be perpetuated in such a way as to provide stockpile revenue from which stockpile expenses would be paid. Management would be motivated to find more ways to utilize excesses and to reduce costs in order to register as much profit as possible. When profits reach certain levels the Treasury would siphon off funds for return to general use.

3. Stockpile output would be allocated more effectively, or put to its most valuable uses, because of the market mechanism which would dictate the most efficient utilization of stockpile assets. The market mechanism or the buyer-seller device, of course is perpetuated by the revolving fund.[9]

Management of the stockpile under the revolving fund offers a pervasive and competitive mechanism for promoting efficient management methods. In addition, it offers the best hope for escaping from beneath legislative constraints and bureaucratic regulation which rob Government agencies of the flexibility needed to take advantage of the evolutionary aspects of our economy.

As was pointed out earlier there is a definite division of management responsibility for the stockpile between the Office of Emergency Planning and the General Services Administration, as well as other interested agencies. This is a constant source of frustration when timely action is needed to conduct affairs effectively. In addition, the Inderdepartmental Materials

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[9] Charles J. Hitch, op. cit., p. 225.

Advisory Committee acts as a restraining influence on activities contemplated by stockpile management. And, Congress still maintains stringent control over appropriations and disposal activities.

A sound and practical organization is needed for stockpile management. It should be designed to perform all functions of stockpiling in order to achieve the desired return on the nation's investment.

To provide the type of organization suggested, it would probably be necessary for Congress to establish by law a single authority much like the Commodity Credit Corporation, for example. A complete range of activity needed to pursue effectively a flexible stockpiling policy should be established under this organization. Congress, the National Security Council, and/or the IMAC might become the board of directors and pass judgment upon, as well as recommend, stockpiling policies. But, this agency would retain responsibility for all decisions made in order to best perpetuate the stockpile. There would be an inherent capability for selecting from alternative solutions to basic stockpiling problems.

The search for alternative solutions becomes a basic step in the entire management process. The elements of stockpiling operation must be reshuffled and whole new alternatives created.[10] Should the stockpile be maintained for national defense only? Does civil defense have any claim on the use of stockpile assets? Should market prices for minerals and metals be stabilized through the use of stockpile assets? Should stockpiling be abandoned entirely and these assets be treated as a sunk cost? Questions such as these constitute a search for alternative uses for stockpile assets. In addition, alternatives rejected at one point in time can be readily examined

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[10] W. Warren Haynes and Joseph L. Massie, Management, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1961, p. 150.

and accepted at another should conditions warrant. Flexibility to adapt to the needs of the times would establish the stockpile as a self-sustaining entity to which much good can accrue.

Reorganization of stockpile management to adapt the stockpile to revenue generating activities also provides questions concerning costs. One basic objective would be to reduce costs to the minimum level needed to properly conduct operations. Because the stockpile is well above its computed strength and disposal activity is so time consuming and unproductive under current laws, the reduction or elimination of avoidable costs is a matter of prime importance. The revolving fund should measurably aid in promoting this objective.

Typical costs generated by the existence of the stockpile are summarized as follows:

1. Carrying costs. The cost of capital tied up in inventory plus handling, obsolescence, spoilage, etc.

2. Interest costs. The cost of money borrowed by the Government to procure and maintain the stockpile. It is sometimes considered as part of the carrying costs.

3. Cost of shortages. This is not significant under current international conditions and due to the size of the stockpile. But, should the need develop the shortage cost would be directly proportional to the urgency of the need. Presumably, a reorganized stockpile organization would attempt to project the need for new materials for stockpiling and undertake advanced action to minimize this cost.

4. Opportunity costs. These costs would have to be considered under present laws and regulations controlling stockpile assets. The funds that might be released by a favorable disposal policy would have many other uses in Government.

5. Costs of operations. These would include the costs of doing stockpile business such as adding new materials, conversions of materials into more useful forms, upgrading and concentration of ores, stock rotation, and actual agency operational costs. It may even be within the capability of a reorganized stockpiling agency to pay its own personnel salaries and administrative costs from revenues generated under the revolving fund.[11]

Evaluation of these costs is not an easy matter. For one thing, many do not appear on the accounting records and consequently they must be developed. In many cases they are difficult to isolate. For example, efforts to isolate fixed and variable costs for an activity of the magnitude of stockpiling would probably be an extensive operation. But in the final analysis, success under a revolving fund plan of financial management rests on the control of costs.

The answer to the question "Why control?" specifies the objectives of an inventory control policy in the narrow sense, and an overall stockpile control policy in the broad sense. Since costs permeate most businesses and because success in business depends largely upon the ability to control them, the primary objective most often will involve cost control.[12] This statement of course would be subject to whatever policies the stockpile might be operating under where factors other than costs become more critical to the analysis.

Thus, reorganization of the stockpiling program under a single responsible agency utilizing a revolving fund concept to help achieve efficient administration appears to be desirable. It would be in keeping with the

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[11] James I. Morgan, "Questions for Solving the Inventory Problem," Harvard Business Review, Vol. 41, No. 4, July-August, 1963, Harvard University, Boston, Mass., p. 104.

[12] Ibid.

wishes of the taxpayers to aid in reducing Government waste and costs.

To accomplish this task, basic principles of good management control are necessary. This is not to say that such controls do not exist under the present organizational structure for the stockpiling program. It does say, however, that the concept of management control can be an effective tool for accomplishing the changes discussed so far.

The basic philosophy behind such a system is that timely action is stimulated as the result of observations that constantly compare progress with approved plans. Corrections are made at the time the need develops, hopefully reducing costs and administrative fire-fighting. Because of its association with the records of the activity, the controller function is best suited to adapt an effective management control system to the organization. In so doing controllership becomes the right arm of top management in the operation of the organization.[13]

Good controllership utilizing a sound management control system can do the following things for a new stockpiling organization:

1. It can control stockpile operations through an integrated plan which would provide cost standards, expense budgets, sales forecasts, revenue planning, and necessary financing.

2. It will measure stockpile performance against approved plans and standards through the design of necessary systems, records, accounting policies and statistics.

3. Controllership will measure and report on the validity of stockpiling goals, as well as the effectiveness of policies, organization, and procedures used.

4. It can supervise all matters relating to reports to the executive and legislative branches of Government, as well as to interested private

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[13] Edward C. Schleh, "Stimulating Action Through Management Control," The Controller, Vol. 40, No. 12, December, 1960, p. 573.

groups and organizations to whom stockpiling is an important subject.

5. It will interpret and report on the effect of external influences on the attainment of stockpile objectives. This would include continuous appraisal of economic and social forces both within and without the Government that influence or affect stockpiling.

6. Finally, controllership will protect stockpile assets, a tremendous task in view of the financial magnitude of the inventories involved. This would include establishment of adequate internal controls, audits, and coverage. It would work closely with the General Accounting Office in the area of internal review to assure efficient management and elimination of waste.[14]

The General Services Administration provides the controllership function under the present organization. The functions outlined above are undoubtedly practiced to some extent. But, the fact remains that GSA applies these functions to all programs over which it has supervision and stockpile operations is just one of these. This makes it difficult to apply sole and specific direction to stockpile management by the controller, or any management official, in the same sense that an independent stockpile agency would apply this direction since stockpiling would be its only interest.

The stockpile controller would be able to install a financial management plan to provide management with proper information for top-level decision making. The plan recommended is termed a programming system and would operate in conjunction with the revolving fund concept already described. It is similar in nature to the Department of Defense System. Reduced to simple terms, the programming system consists of a five year

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[14]David R. Anderson and Leo A. Schmidt, Practical Controllership, Richard D. Irwin, Inc., Homewood, Illinois, 1951, p. 11.

projection of all stockpile activities expressed in physical, or basically non-financial terms, together with their costs and a set of regular procedures for modifying the plan in the face of necessary changes.[15]

The key to a stockpile programming system would be decision making by program elements and major programs. A program element may consist of disposal action on a single commodity such as natural rubber; major programs might be concerned with adapting portions of the stockpile to Civil Defense. Major programs would be isolated upon reorganization and divided into applicable program elements all subject to change as conditions might warrant.

The program element includes costs and benefits that accrue to it. Benefits will be measured by the ways in which the element helps to achieve broad stockpile goals. Costs will be those required to execute the element.

The programming system will make it possible to unify program decisions and budget decisions. During the annual budget review the approved five year plan would be translated into detailed cost estimates. By comparison of revenue expectations with costs an annual surplus or deficit can be predicted. If serious deficits are anticipated under the revolving fund, then relief by appropriation may be requested from Congress.

The programming system should free the stockpiling agency to look systematically at stockpile plans and programs for period of time in excess of one year. It provides a major tool for use by top management to actively and effectively promote stockpiling policies, whatever they may turn out to be.

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[15]Allen C. Enthoven, "Economic Analysis in the Department of Defense," American Economic Review, Vol. LIII, No. 2, May 1963, pp. 414-417.

Finally, it should be pointed out that many features of scientific inventory management can be applied to stockpiling operations. Economic analysis, statistical analysis, operations analysis, etc., may all have applications toward solving stockpiling problems. These techniques undoubtedly receive more than passing attention from the present stockpile management team. But, again, the agencies presently managing the stockpile have other duties as well. In the final analysis, an optimum program should develop through an agency devoted specifically to stockpile management. The worth of this program will be measured in dollars for all practical purposes in the years to come unless a national holocaust develops suddenly. The function of controllership may thereby prove to be the strength or failure of future attempts to resurrect the stockpile from the throes of economic and strategic stagnation.

CHAPTER VII

CONCLUSION

It seems clear that from the standpoint of national security much of the present stockpile of strategic and critical materials is no longer required. However, there is much that can be done toward adapting the assets of the stockpile to a multitude of uses that befit the circumstances of the times. It appears that the stockpile can serve many different purposes at the same time. Assets valued at almost $9 billion do not have to be applied to only one specific objective. Therefore, reconstitution of the stockpile to suit modern assumptions of national strategy and the public welfare should be a matter of utmost concern to the Government and the public. Clarence Randall, former Governor of Massachusetts, observed that "the problems of Government are too complex and the policies of Government too close today to be dealt with successfully by ignoring them."[1]

The utility of the stockpile has been eroded by enormous changes in the art of warfare in the years since World War II. During this period of extensive change, stockpile planning has apparently remained inert. There are those who would take steps to prohibit even cautious and orderly disposal of stockpile excesses created as the result of changing concepts and technology. Such people deprive the nation of use of funds tied up in stockpiles that might be used for more worthy purposes. There are others who believe that stockpiling is completely outmoded and that steps must be

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[1]Robert F. Lenhart and Karl Schriftgiesser, "Management in Politics," Annals of the American Academy of Political and Social Science, Vol. 319, September, 1958, p. 36.

taken to convert these assets to other uses. Such people believe that the only war likely to be fought by this country will be nuclear in character, thereby reducing the value of a pre-attack mobilization base to practical insignificance.

Although the answer to these extremes of thought lies somewhere in between, it seems certain that the latter viewpoint is more near the truth than not. Therefore, considerable effort should be applied toward determining uses for stockpile assets as a post attack recovery aid. Raw materials would not necessarily be needed, but finished goods and structural facilities can be created from these assets for a new form of stockpiling.

> Being stockpiled for a crash civil defense program might make an enormous difference, both in our ability to meet civil defense in a hurry and our ability to do it in an orderly way rather than in panic when people start looking for gunny sacks, shovels and everything else.[2]

Civil defense is but one of many uses to which stockpile assets might be put. Foreign aid, foreign policy, market stabilization, cartel busting, and undoubtedly many more uses may provide a profitable use for these assets.[3] It would appear that man's ingenuity is the limiting factor. Although the stockpile was created as a national security measure, the country should be mature enough to see that it has outgrown this use and that a practical approach to the use of the stockpile must be developed, sooner or later.

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[2] Inquiry, Draft Report, op. cit., p. 106.

[3] Use of stockpile assets in areas such as foreign aid, foreign policy, market stabilization, etc., assumes recognition of the fact that these uses are subject to those constraints inherent with each operation. It was not intended to develop solutions to these problems in this paper, but their existence cannot be ignored.

It is not inconceivable that a greater threat to the nation exists by ignoring Government programs and activities that divert our country's resources into inefficient uses. There can be danger to our national future if programs such as stockpiling are permitted to remain as part of national planning when they fail to contribute any significant value. Stockpiling should conform to planning that best suits national growth and security for the years ahead.

RECOMMENDATIONS

The following recommendations are suggested as a means for establishing a progressive approach to optimum utilization of the stockpile:

1. Legislation should be enacted to consolidate all inventories of strategic and critical materials into one inventory. This inventory might properly be called the National Stockpile. It should be subdivided into two parts. One part would consist of at most a one year supply of incremental strategic and critical materials needed in the event of limited or conventional types of war. This part would be subject to change with materials moving to the second part as conditions change. The second part would consist of the balance of the stockpile and would be termed operating stock. The one year supply would be reserved for war or other national emergencies and would change with strategy and technology. Operating stock would be utilized by stockpile management for needs deemed best for the Government and the public, and would serve to generate operating revenue.

2. Legislation should establish a separate, singularly responsible stockpile agency to manage all phases of the stockpiling program. This agency should be far enough removed from political restraints and private interest group pressure to permit relatively unrestricted operation within guidelines furnished by the executive and legislative branches of the Government.

3. The agency under which the stockpile is to be managed should utilize the revolving fund for its financial operation. The trend in Government is toward adaptation of revolving funds to as many agencies as can be practically managed in this way. With so much value at stake it is imperative that the best possible tools be provided to stockpile management to perform the job required.

4. Basic principles of management control through strong controllership must permeate the new stockpile organization. In this way the organization will be capable of controlling costs more effectively, and costs are of prime importance in achieving efficient administration.

5. A programming system of financial management should be adopted through the controller function to provide a proper basis for decision making. This system should establish a long-range financial plan, preferably for the ensuing five years, to provide direction for stockpile activities in the years ahead.

6. All stockpile operations should be declassified and made part of the public record. This would permit more intelligent evaluation of stockpile policies by interested groups and agencies for preparation of their own plans. There appears to be no great harm to our national security from disclosure of such knowledge to the public. On the contrary, some good may accrue from reexamination of stockpile activities by public exposure and debate.

7. Scientific management and inventory control techniques should be applied to all possible areas of stockpile operation. Specific studies toward providing better management tools would be invaluable in the long run.

8. An extensive search for uses to which stockpile assets can be applied, both within the Government and the private economy, should be initiated with, perhaps, particular emphasis on civil defense applications. The more uses that can be derived the greater will be the justification for the stockpile.

9. Disposal of stockpile excesses should be freed from Congressional control to the greatest extent possible under the law. Although there is much in favor of Congress exercising a certain degree of control over disposal of these materials, it is certain that no efficient program can be developed if one hand is tied behind the agency's back. Disposal activity would be the heart of revenue production under the revolving fund. It must be left to wise and enlightened management of stockpile operations by the agency to be cognizant of national or international implications of projected disposal planning. Again, the interests of the American public should be the decisive factor in making these decisions.

In conclusion, the following editorial printed in The Wall Street Journal described the stockpiling situation as it now stands:

> Two years ago President Kennedy expressed concern over the size of the defense materials stockpile and asked Congress for recommendations for orderly disposal of surplus items. Since then the situation has grown worse.
>
> It's true that Congress held hearings. But about all they produced were highly partisan charges that politicians and planners in the past had generally made a mess of things. Along with dire warnings that disposal of the surplus could cause all sorts of disruptions.
>
> Meanwhile, the total value of the pile of metals, fibers and other materials in the past 12 months has edged upward by $100 million as purchases under long-standing contracts have more than offset skimpy sales. The surplus portion of the total has grown even more, rising by $1.1 billion to a total of $4.5 billion, as planners continually scale down estimates of needs.
>
> Moreover, of course, the cost of storing all the unneeded stuff is steadily mounting. Also growing are the opportunities for future political infighting and maneuvering, as well as the risks that any eventual cut in the Federal horde will really damage private markets for the materials involved.

So, it's worth noting that a Senate subcommittee has at last voted a plan to speed up disposal. At present Congress must approve each sale from the stockpile. The subcommittee proposed instead that the President be authorized to sell any items 100 days after giving notice to Congress, if neither the House or the Senate objects. This may not be the best answer, but the present system is no answer at all.

It may well be that the problem has been allowed to grow so large that it is no longer susceptible to painless solution. But to do nothing makes as much sense as refusing to bail out of a leaky boat for fear of slipping over the side.[4]

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[4]Editorial in The Wall Street Journal, April 6, 1964, p. 10.

BIBLIOGRAPHY

Books

Anderson, David R. and Leo A. Schmidt. Practical Controllership. Homewood, Illinois: Richard D. Irwin, Inc., 1961.

Backman, Jules, Antonin Basch, Solomon Fabricant, Martin R. Gainsbrugh and Emanuel Stein. War and Defense Economics. New York: Rinehart and Company, Inc., 1952.

Bidwell, Percy W. Raw Materials. New York: Harper and Brothers, 1958.

Brodie, Bernard. Strategy in the Missile Age. Princeton, New Jersey: Princeton University Press, 1959.

Haynes, W. Warren and Joseph L. Massie. Management. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1961.

Hitch, Charles J. and Roland N. McKean. The Economics of Defense in the Nuclear Age. Cambridge, Massachusetts: Harvard University Press, 1961.

Kahn, Herman. Thinking About the Unthinkable. New York: Horizon Press, 1962.

Kissenger, Henry A. Nuclear Weapons and Foreign Policy. New York: Harper and Brothers, 1957.

Lincoln, George A. Economics of National Security. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1954.

Osgood, Robert E. Limited War. Chicago: The University of Chicago Press, 1957.

Ransom, Harry H. Can American Democracy Survive Cold War? Garden City, New York: Doubleday and Company, 1963.

Schilling, Warner R., Paul Y. Hammond and Glenn H. Snyder. Strategy, Politics and Defense Budgets. New York: Columbia University Press, 1962.

Government Publications

Department of Defense, The Munitions Board. Stockpile Report to the Congress: January 23, 1950. Washington, D.C.: Government Printing Office, 1950.

Department of Defense, The Munitions Board. Stockpile Report to the Congress: July 23, 1951. Washington, D.C.: Government Printing Office, 1951.

Department of the Navy. Navy Comptroller Manual: Vol. I, NAVEXOS P-1000

The Executive Office of the President, Office of Defense Mobilization. Outline of General Policy for Planning and Operation of the Strategic and Critical Materials Stockpile. Washington, D.C., 1954.

General Services Administration. Statistical Supplement Stockpile Report to the Congress: July-December 1963. Washington, D.C., 1964.

Industrial College of the Armed Forces. The Economics of National Security: Vol. VI. Washington, D.C., 1956.

McDermott, Edward A. "An Open Letter On Stockpiling," Reprint from Mining Congress Journal. Washington, D.C.: Office of Emergency Planning, June, 1963.

Office of Defense Mobilization. "Defense Mobilization Order V-7," Federal Register: June 14, 1958. Washington, D.C.

Office of Emergency Planning. Strategic and Critical Materials Descriptive Data. Washington, D.C.: Government Printing Office, March 31, 1963.

Office of Emergency Planning. Stockpile Report to the Congress: January-June 1963. Washington, D.C.: Government Printing Office, 1963.

The Committee on the National Security Organization. Task Force Report on National Security Organization: Appendix G. Prepared for the Commission on Organization of the Executive Branch of the Government. Washington, D.C., 1949.

U. S. Congress, Senate, Committee on Armed Services, National Stockpile and Naval Petroleum Reserves Subcommittee. Inquiry into the Strategic and Critical Materials Stockpiles of the U.S.: Draft Report;Part 1; Part 2; Part 5; and Part 9. Washington, D.C.: Government Printing Office, 1963.

U. S. Congress, Senate, Committee on Government Operations. Financial Management in the Federal Government. Washington, D.C.: Government Printing Office, 1960.

U. S. Congress, Senate, Special Subcommittee on Foreign Economic Corporation. Strategic Materials Program of the Economic Cooperation Administration. Washington, D.C.: Government Printing Office, 1952.

U. S. Special Stockpile Advisory Committee. Stockpiling for Defense in the Nuclear Age. Washington, D.C.: Government Printing Office, 1958.

Articles

Breckner, Norman V. "Government Efficiency and the Military Buyer-Seller Device," Journal of Political Economy, October 1960, p. 469.

Drucker, Peter F. "How To Be An Effective Executive," Nation's Business, April, 1961, p. 21.

Enthoven, Allen C. "Economic Analysis in the Department of Defense," American Economic Review, May, 1963, pp. 414-417.

Lenhart, Robert F. and Karl Schriftgiesser. "Management in Politics," Annals of the American Academy of Political and Social Science, September, 1958, p. 36.

Milstein, David N. "Stockpiling-What Now?," Challenge, June, 1962, pp. 31-32.

Morgan, James I. "Questions for Solving the Inventory Problem," Harvard Business Review, July-August, 1963, p. 104.

Schleh, Edward C. "Stimulating Action Through Management Control," The Controller, December, 1960, p. 573.

Worsnop, Richard L. "Government Stockpiling," Editorial Research Reports, August 22, 1962, pp. 630-631.

Other Sources

Lawrence, William N., Office of Emergency Planning. Letter to LCDR D. B. Gordon, U. S. Naval Postgraduate School, Monterey, California, February 4, 1964.

Lawrence, William N., Office of Emergency Planning. Letter to LCDR D. B. Gordon, U. S. Naval Postgraduate School, Monterey, California, March 24, 1964.

New York Times, February 1, 1962.

Office of Emergency Planning. "Remarks by Edward A. McDermott, Director, Office of Emergency Planning," Press Release: August 13, 1963. Washington, D. C., 1963.

Office of Emergency Planning. Press Release No. 88: December 11, 1962. Washington, D. C., 1962.

Public Law No. 520. Strategic and Critical Materials Stock Piling Act. 79th Congress, 2nd Session, July 23, 1946.

U. S. Congress, Senate. "Materials Reserve and Stockpiling Act," Senate Bill S.2272: introduced October 31, 1963 in 88th Congress, 1st Session.

The Wall Street Journal, March 23, 1964.

The Wall Street Journal, April 6, 1964.